

## Patent Claims

1. Use of materials based on quasi-one-dimensional transition metal ternary compounds  $M_xH_yHa_z$  (where M is a transition metal Mo, W, Ta, Nb; H is sulfur (S), selenium (Se), tellurium (Te); Ha is iodine (I)) and/or doped quasi-one-dimensional transition metal ternary compounds  $M_xH_yHa_z$  (where M=Ta, Ti, Nb; H is sulfur (S), selenium (Se), tellurium (Te); Ha is iodine (I)) doped with elements of group 1b (silver (Ag), gold (Au), or copper (Cu)) as electron emitters under the influence of an external electric field.
2. Materials according to Claim 1, characterized in that the percentage of quasi-one-dimensional transition metal ternary compounds and/or doped quasi-one-dimensional transition metal ternary compounds doped with elements of group 1b in the active material ranges from 0.01 to 99.9 %, the rest consisting of additives in the form of conducting, non-conducting or semi-conducting compounds or composites.
3. Use of materials according to Claims 1 and 2, characterized in that electron emission takes place at a pressure below 1 mbar.
4. Electron emitters under the influence of an external electric field, characterized in that they are made of materials based on quasi-one-dimensional transition metal ternary compounds  $M_xH_yHa_z$  (where M is a transition metal Mo, W, Ta, Nb; H is sulfur (S), selenium (Se), tellurium

(Te); Ha is iodine (I)) and/or doped quasi-one-dimensional transition metal ternary compounds  $M_xH_yHa_z$  (where  $M=Ta, Ti, Nb$ ; H is sulfur (S), selenium (Se), tellurium (Te); Ha is iodine (I)) doped with elements of group 1b (silver (Ag), gold (Au), or copper (Cu)).

5. Electron emitters according to Claim 4, characterized in that the percentage in such materials of quasi-one-dimensional transition metal ternary compounds and/or doped quasi-one-dimensional transition metal ternary compounds doped with elements of group 1b in the active material ranges from 0.01 to 99.9 %, the rest consisting of additives in the form of conducting, non-conducting or semi-conducting compounds or composites.
6. Use of materials according to Claims 4 and 5, characterized in that electron emission takes place at a pressure below 1 mbar.